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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

J. Christian SWINDAL

Appl. No.: 10/713,212

Filed: November 17, 2003

For: **Optical Position Measuring System
and Method Using a Low
Coherence Light Source**

Confirmation No.: 2451

Art Unit: 2886

Examiner: Hansen, Jonathan M.

Atty. Docket No.: 1875.2020000

Arguments to Accompany the Pre-Appeal Brief Request for Review

Commissioner for Patents
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Sir:

Applicant hereby submits the following Arguments, in five (5) or less total pages, as attachment to the Pre-Appeal Brief Request for Review Form (PTO/SB/33). A Notice of Appeal is concurrently filed.

Arguments

Applicant's arguments in the Amendment and Reply under 37 C.F.R. § 1.111 ("Amendment"), filed in response to the Office Action mailed November 6, 2007 ("Office Action"), were not properly considered or responded to by the Examiner in the final Office Action ("final Office Action") mailed April 23, 2008. Applicant also respectfully disagrees with the Examiner's statements in the Advisory Action mailed July 14, 2008 ("Advisory Action") issued in response to the Amendment and Reply under 37 C.F.R. § 1.116 ("AF Amendment"). First, the Examiner has failed to properly consider claim 27 as it appears in the AF Amendment in the Advisory Action, which Advisory Action notes all claim amendments in the AF Amendment will be entered upon appeal. Second, the Examiner's responses were legally and factually deficient because the

Examiner failed to adequately show where the cited references teach or suggest at least an interferometer configured to use the diffracted light to determine a position of the alignment mark to produce a control signal related to the determined position, wherein the interferometer is configured to determine the position of the alignment mark using an interference pattern, as recited using respective language in the pending claims.

Claims 14, 20, 26, and 27

In the final Office Action, the Examiner rejected claims 14-16, 18-21, and 23-26 under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,155,370 to Osawa *et al.* (hereinafter "Osawa"). Claim 27 was noted as being rejected in the Advisory Action, although no specific reasons for rejection were provided by the Examiner on the Continuation Sheet of the Advisory Action. Applicant will respond below assuming the Examiner meant to state claim 27 was also rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Osawa.

In the Advisory Action, the Examiner improperly relies on non-enabling disclosure, i.e., the claims of the Osawa reference, and not the specification or Figures, to teach some recited features of the instant application's pending claims. For at least this reason, the Examiner has failed to establish a *prima facie* case of obviousness.

Also, in the Advisory Action, the Examiner stated that the alignment marks on the mask and wafer are Fresnel zone plates that are allegedly understood by those skilled in the art to accomplish the focusing of light through diffraction, and that in FIG. 1A, Osawa illustrates a Fizeau interferometer. Applicant respectfully disagrees with the Examiner's statements. Even assuming the Examiner can properly rely on the claims, which Applicant does not acquiesce to, even if Osawa can be alleged to teach first and second zone plates associated with corresponding first and second substrates (*see*, claim

15 of Osawa), in the description of FIG. 1A (at col. 3, lines 23-45), Osawa is silent with respect to such zone plates being a part of an interferometer, Fizeau or any other type. On the contrary, as is described in the AF Amendment, and in detail below, Osawa discourages the use of an interferometer or an interferometric pattern in relation to alignment measuring.

Therefore, since the applied reference fails to teach or suggest at least these features of the pending claims, the Examiner's continued reliance on the applied reference pursuant to 35 U.S.C. § 103(a) is legally and factually deficient.

Osawa teaches away from an interferometer

Applicant's claim 14 recites, for example, "wherein the interferometer is configured to determine the position of the alignment mark using an interference pattern." Claims 20, 26, and 27 also recite, in respective language, at least this similar distinguishing feature.

Osawa does not teach or suggest at least this feature of claims 14, 20, 26, and 27. Osawa, in cited FIG. 1A and corresponding description thereof at col. 3, at most teaches spots of focused light formed on a plane perpendicular to an optical axis, which contains the point 78. The amount of relative deviations of these light spots is then used to align the mask M and wafer W (*see*, Osawa at col. 3, lines 32-36). There is no disclosure of an interference pattern in FIG. 1A of Osawa being used for such an alignment between the mask M and the wafer W.

In fact, Osawa throughout its description teaches avoiding interference or an interferometer to perform any position measuring. For example, in col. 6; lines 29-30, Osawa notes (emphasis added):

From this it is seen that, with a broader spectral width and shorter wavelength, the prevention of interference is better,

Also, Osawa in col. 4, lines 40-42 teaches (emphasis added):

Such interference leads to a decrease in the signal-to-noise ratio of the sensor 8, resulting in a large reduction of the alignment accuracy.

Similarly, other parts of Osawa's disclosure teach, for example, at col. 2; line 20, col. 4; lines 28-30 and 36, col. 6; lines 29-30, and col. 13; lines 12-14, prevention of interference and problems associated with interference. Thus, Osawa by explicitly teaching the desire to avoid interference teaches away from claims 14, 20, 26, and 27. See M.P.E.P. §§ 2141.02 and 2145(X)(D)(2); *Gillette Co. v. S.C. Johnson & Son, Inc.*, 919 F.2d 720, 16 U.S.P.Q.2d 1933 (Fed. Cir. 1990) (stating the closest prior art should not be used because the closest prior art "would likely discourage the art worker from attempting the substitution suggested by the [inventor/patentee]."); *In re Gurley*, 27 F.3d 551, 31 U.S.P.Q.3d 1130 (Fed. Cir. 1994) ("A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ...would be led in a direction divergent from the path that was taken by the applicant.").

At least because Osawa's disclosure discourages use of interferometry or interference patterns for measuring, Osawa teaches away from at least the above-noted distinguishing features of claims 14, 20, 26, and 27, and therefore does not render them obvious.

Claims 17 and 22

The Examiner rejected claims 17 and 22 under 35 U.S.C. §103(a) as allegedly being unpatentable over Osawa in view of U.S. Patent No. 4,821,277 to Alphonse et al. (hereinafter "Alphonse"). Applicant respectfully traverses this rejection.

Claims 17 and 22 depend from claims 14 and 20, respectively, and incorporate all features thereof, in addition to their additional distinguishing features. Alphonse is not being used to overcome the deficiencies Osawa with respect to claims 14 and 20, as presented above, and neither does Alphonse overcome those deficiencies. Accordingly, Osawa and Alphonse, taken alone or in combination, do not teach or suggest each and every feature of claims 17 and 22, and therefore do not render them obvious.

Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) over Osawa and Alphonse.

The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 19-0036.

Respectfully submitted,

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